

(No Model.)

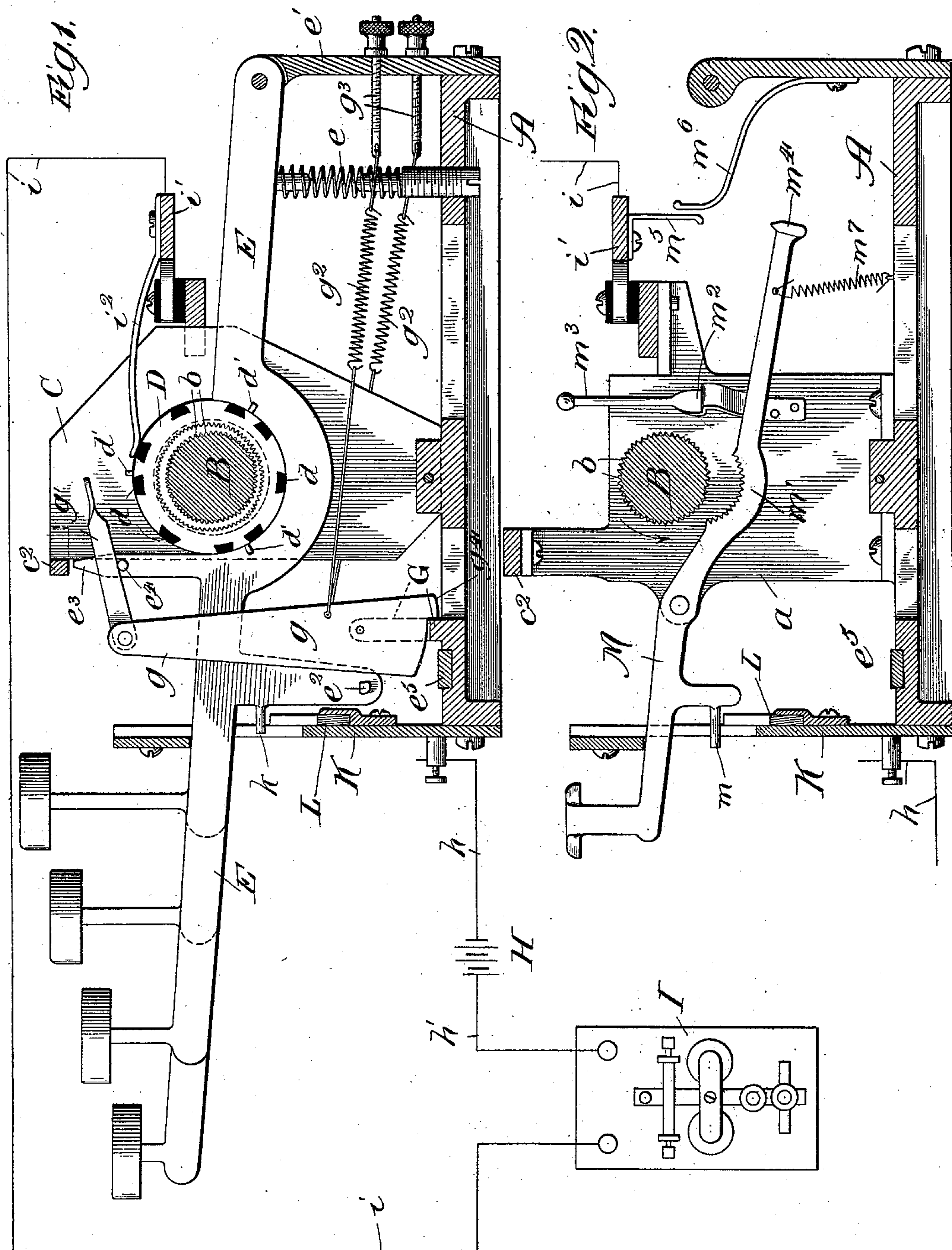
2 Sheets—Sheet 1.

C. E. YETMAN.

AUTOMATIC TELEGRAPHING MACHINE.

No. 534,025.

Patented Feb. 12, 1895.



Witnesses:
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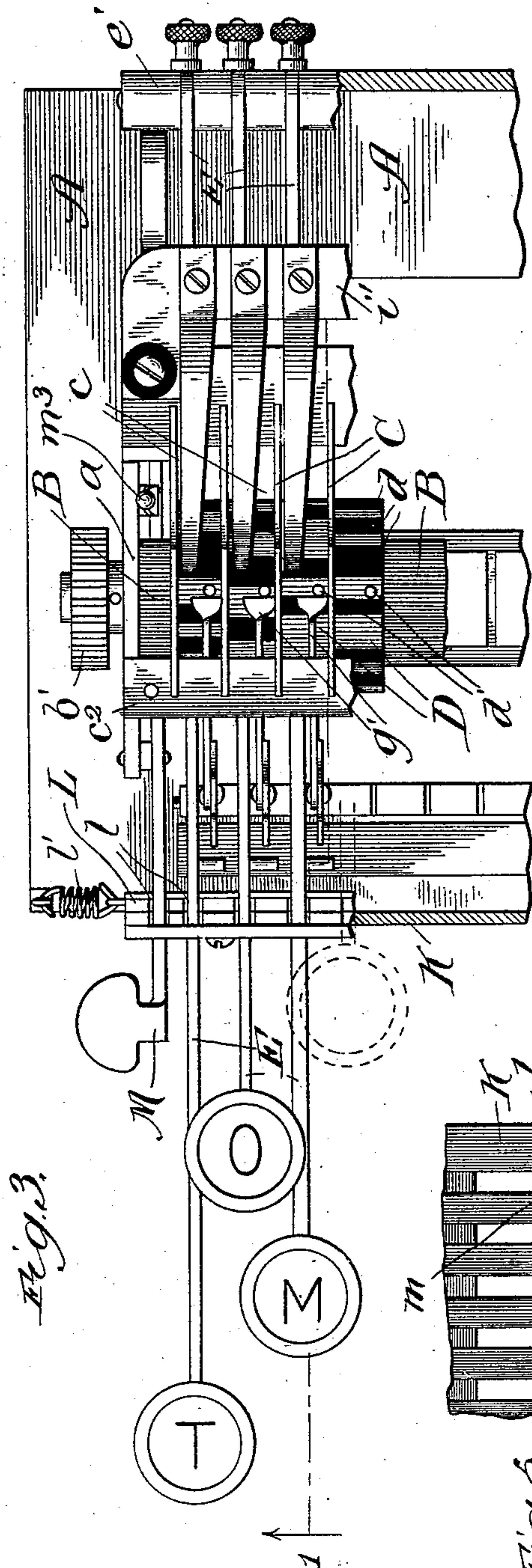


Fig. 3.

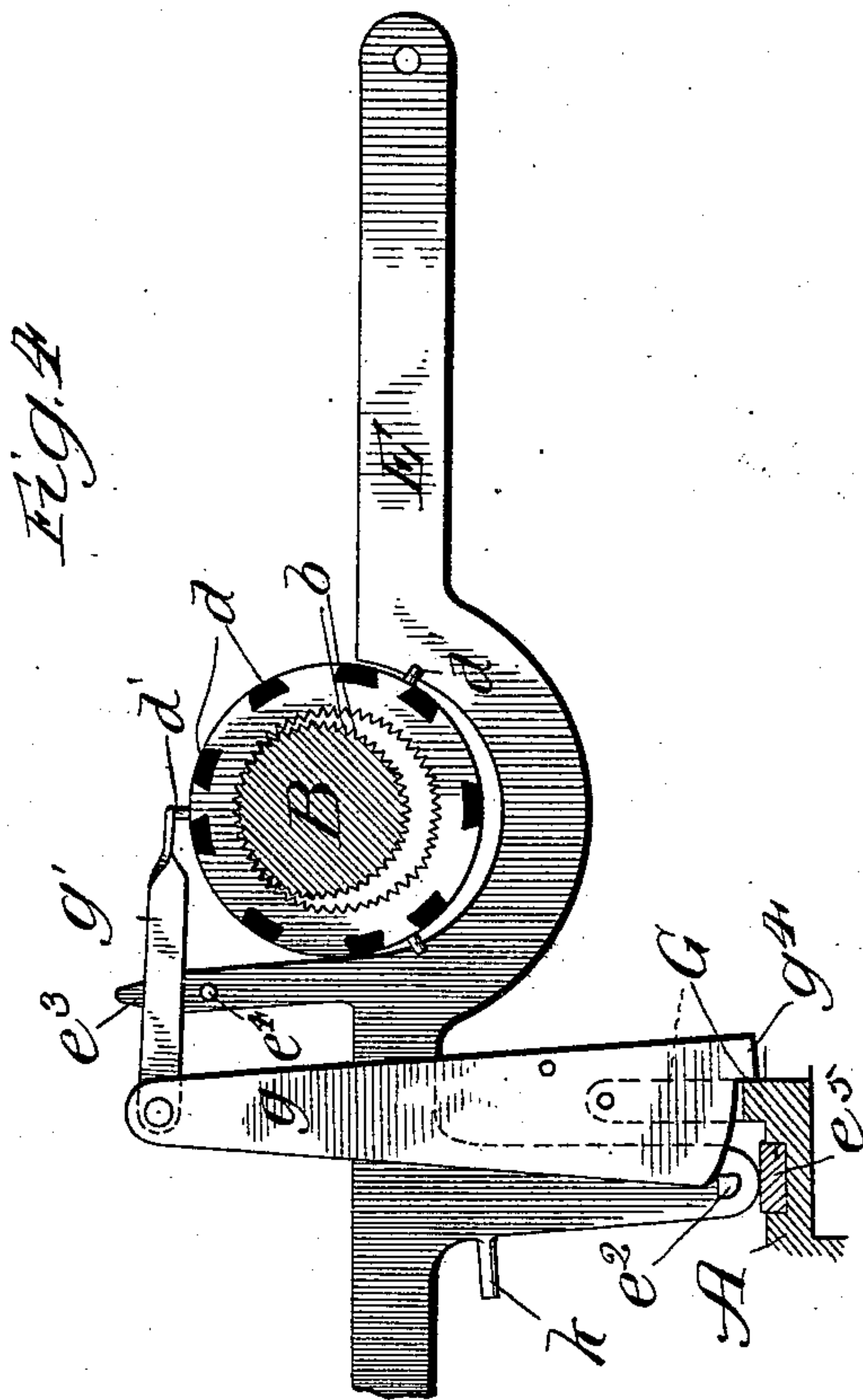


Fig. 4.

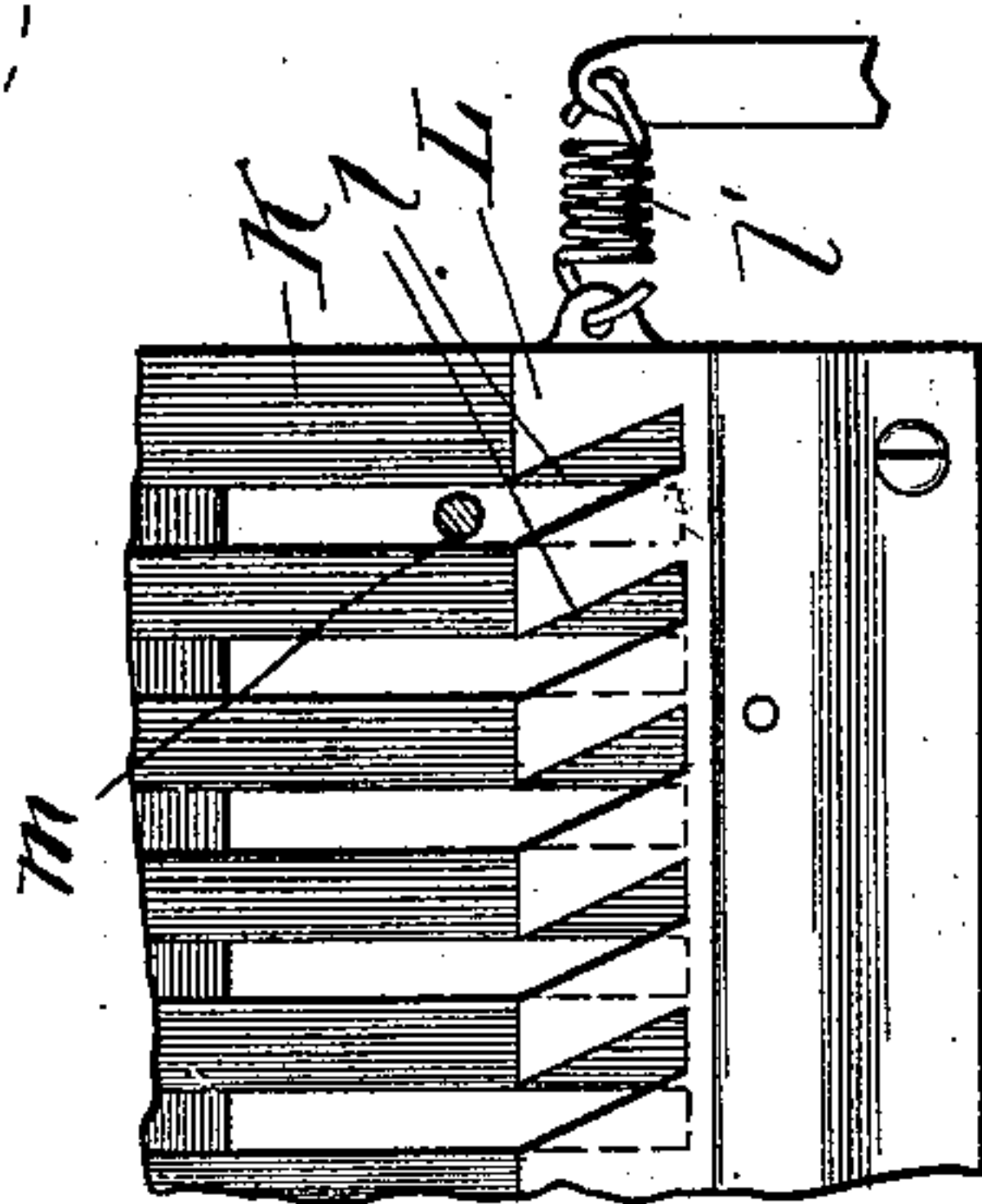


Fig. 5.

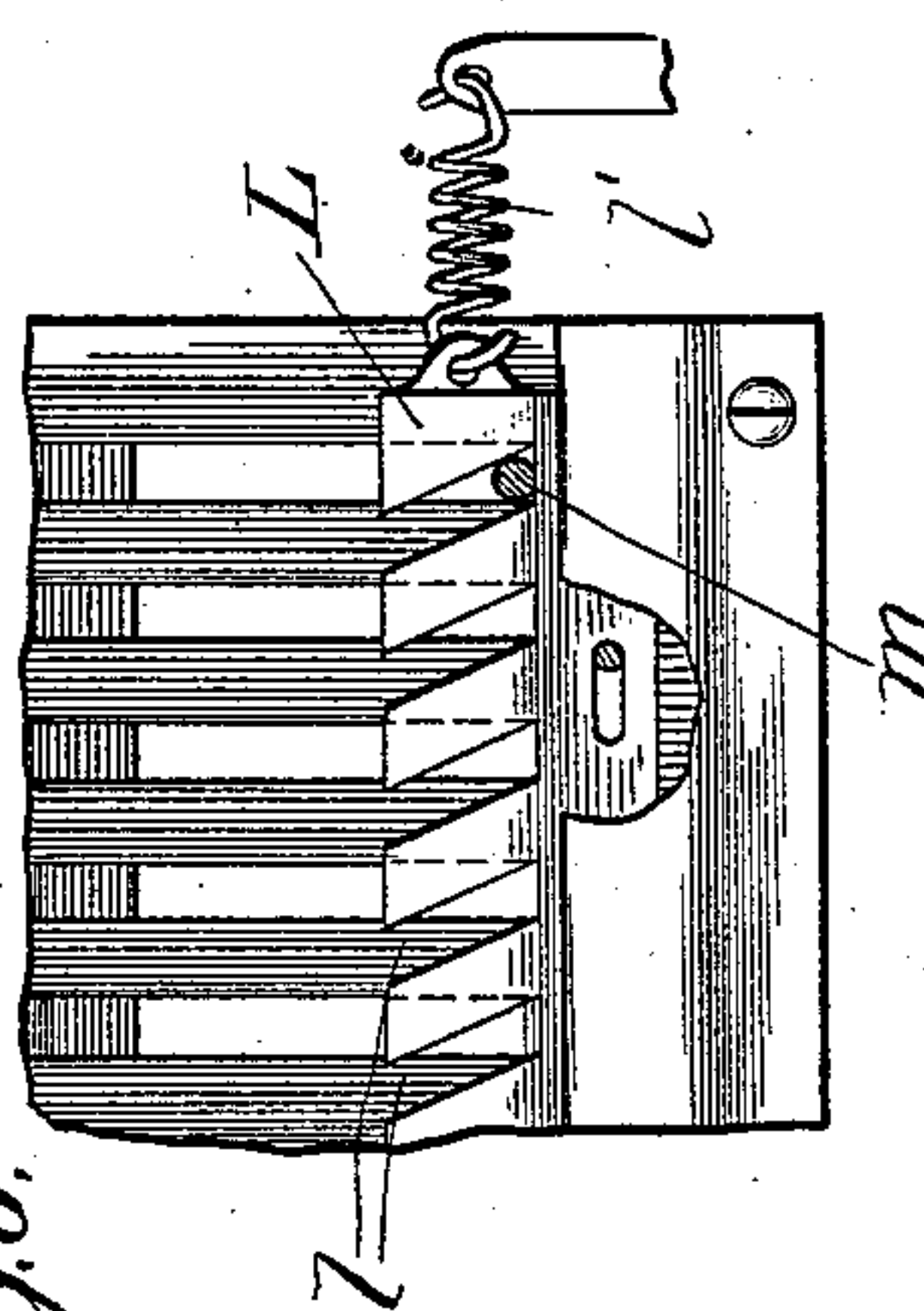


Fig. 6.

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UNITED STATES PATENT OFFICE,

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AUTOMATIC TELEGRAPHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 534,025, dated February 12, 1895.

Application filed December 2, 1893. Serial No. 492,578. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. YETMAN, residing at Oak Park, Cook county, Illinois, have invented certain new and useful Improvements in Automatic Telegraphing-Machines, of which the following is a specification.

The object of my invention is to provide a simple, economical and efficient machine, by which certain predetermined signals may be transmitted automatically from a sending to a receiving station; and it consists in the features, details and combinations hereinafter described and claimed.

In the drawings, Figure 1 is a vertical sectional elevation taken on line 1 of Fig. 3; Fig. 2, a vertical sectional elevation of the locking and short-circuiting mechanism; Fig. 3, a plan view of a portion of the machine; Fig. 4, a vertical elevation of a portion of the mechanism shown in Fig. 1 in its operative position; Fig. 5, a front elevation of a portion of the locking mechanism, and Fig. 6 another view of the locking mechanism, showing it in its operative position.

In the telegraph systems now in use—especially when using the ordinary key in connection with the Morse sounder, and sending all signals entirely by hand—the operator is liable to make mistakes in the letter or word and to jumble the letters and words together in an indistinct manner. Again, it is impossible to send with any great speed, as there is a maximum limit to sending by hand. According to the invention a keyboard of the Remington standard typewriter is used together with connecting mechanism, so that as the key representing a certain letter is depressed, the signal corresponding to that letter or character will be transmitted to the receiving station. All the sending operator has to do is to press these buttons consecutively to spell the word and send the message, and he can send with as high a rapidity as is possible in the use of the ordinary typewriter, each word and letter thereof being sent at a uniform speed. Since the make and break of the contacts is done automatically and at a uniform rate, the sounder will give forth a sharp, heavy signal, making it

easier for the receiving operator to take the message.

The improved machine is provided with a base A of the desired form and shape to carry and support the operating mechanism. Mounted in suitable bearings, as at *a*, is a shaft B, having around its periphery and extending almost the entire length of the shaft serrations or saw-shaped teeth, *b*. This shaft is provided at its outer end with a gear *b'* which may be connected through a gear train or other mechanism with a suitable motor adapted to rotate the shaft B, at any desired uniform rate of speed, the rotation of the shaft being preferably in the direction indicated by the arrow in Fig. 2.

In the drawings the full length of the base A is not shown. The base however is of sufficient length to carry the character-keys for the alphabet and such other marks or words beside which it may be desirable to array in the bank. The base, and preferably that portion of it between the bearings of the shaft B, is divided into the desired number of spaces by means of partitions C, which may be made of any suitable material—either of metal or hard rubber for insulating purposes. Loosely surrounding the driving shaft in the spaces *c*, formed by the partitions is the series of circuit make and break rings D, each of which is provided at its outer circumference with insulating blocks *d*, thus leaving spaces between the blocks which represent the signals to be transmitted over the wire. Each ring may have but one letter on it, or the same letter may be duplicated around the ring; and for each duplication of the signals upon the ring there is a space pin *d'*, which separates the duplicates and automatically releases the character-key mechanism after it has been operated. In Fig. 1 the ring is represented as being divided into three spaces, by means of the pins *d'*, and between each of these pins are three insulating blocks, so arranged as to leave long spaces, which, in sending a message, will send two dashes to represent the letter M.

The ring D loosely mounted about the rotating shaft stands normally out of engagement therewith being sustained instead by

the concave shifter, serving also as a brake to suddenly arrest the ring, and which as here shown is made in piece with the character key-lever E. By withdrawing the shifter on descent of the key-lever, the ring drops into engagement with the shaft B and being carried thereby describes a partial revolution equal to the distance between the space-pins d' . At the end of this interval the shifter rises to the path of the ring, by automatic release as presently detailed, and lifts the ring clear from the shaft B and simultaneously arrests the revolution of the ring. It thus appears that the circuit make and break ring is sustained alternately at its inner and outer rim by the driver B and shifter respectively and that in action the driver carries only the single ring then selected to transmit the signal appropriate thereto.

Each key-lever E is pivoted at the back of the machine to an upright bracket e' , while by spring e in front of the bracket-pivot the lever is held in its raised or normal position in readiness to be struck by the finger. To hold the key-lever depressed until the signal has been transmitted by the action of the circuit make and break ring, there is mounted at the front of the machine on brackets G a series of latches g , each of which encounters a pin e^2 carried by the key-lever. The latches g are held upright at their pivots on brackets G by means of the finger spring g^2 and set-screws g^3 sustained at the back of the machine. A stop g^4 at the heel of the latch g abuts against the frame to resist the action of spring g^2 and hold the latch in the path of the pin e^2 carried by the key-lever E. When the lever is depressed the pin e^2 , thereon encounters the latch and turns the same about its pivot on bracket G until the lever reaches the limit of its descent and abuts against the cushion e^5 . At this juncture the latch g snaps over the pin e^2 and locks the key-lever at its downward limit (see Fig. 4), the result being to suspend the ring D upon the shaft B which begins at once to revolve. In its descent the key-lever carries down its extension finger e^3 and rest-pin e^4 which thus allows the trip g' pivoted near the upper or free end of the latch g to be lowered until it rests in contact with the surface of the ring D. As the ring moves while engaged with the rotating shaft, its next pin comes into contact with the trip-pawl, pushing the upper end of the latch forward and its lower end correspondingly backward, thereby releasing the key-lever, which resumes its normal or initial position while its finger-pin e^4 lifts the trip clear from the path of the ring. The bar c^2 is arranged above the trip pawls so that they will not be thrown backward to the opposite side of the vibrating lever, and to always insure their being kept in position above the pins e^4 .

It will be understood that the machine is in the same electric circuit with an ordinary Morse sounder, and the circuit here shown is as follows: H is the battery, connected by

means of a wire h , to the metallic base of the machine and by means of the wire h' , with one pole of the Morse sounder I, the other pole of the Morse sounder being connected by means of the wire i , with the metallic bar i' , which is insulated from the base of the machine and has a spring i^2 connecting with each of the circuit make and break rings, so that as the rings revolve, the current passes from the battery over the base of the machine, through the rotating driver and the ring and by the springs i^2 , through the wire i to the sounder and through the wire h' to the battery. In its normal condition of rest the contact brush will bear on one of the insulated blocks in the ring, thus at all times keeping the circuit of the machine open until it is desired to operate.

To prevent more than one lever being depressed at a time, or until the preceding key has been released and its character sounded, there is a front plate K with slots equal in number to the number of key levers used, each key lever being provided with a projecting pin k extending into such slot. Secured to the rear end of this plate in such manner that it has a limited sliding motion, is a sliding plate L provided with slots I, arranged at an angle in relation to the slots in the plate K, the normal position of the sliding plate being such that the upper portion of its open end registers with the slots in the plate K. As the key-lever is depressed its pin will pass into one of these angular slots until the lever reaches its lowest limit of motion. The pin strikes the slanting sides in the sliding plate and pushes said plate to that position shown by Fig. 6. The solid portion of the plate now registers or presents an obstacle to the descent of the other levers and so continues until the lever which has been depressed is raised, such action allowing the spring to carry the sliding plate back to its initial or normal position.

To provide means by which the machine may be locked and to short-circuit the machine so that the current will pass through on the main line without passing through the machine, and to prevent the serrated shaft from rotating, I pivot—preferably to the front of the machine—a compound lever M and provide it with a pin m which projects into the front slots of the plate K the same as the projecting pins on the key levers. As this locking key is depressed, its pin enters the angular slots on the sliding plate, and by moving said plate to the position shown in Fig. 6 prevents the descent of the other keys. A portion of the opposite end of the key N has serrations m' corresponding to those of the rotating shaft, so that as the forward end of the key is depressed the serrated end rises to engage with the teeth of the rotating shaft. The shaft is thus prevented from rotating while at the same time that portion of the lever adjacent to the serrations rises above the shoulder m^4 , on a spring m^3 and is there held. The end of

the lever is provided with a metallic block m^4 which as the lever end rises, comes between the spring terminals m^5 and m^6 , one arranged and connected electrically with the base of the machine and the other with the strip i' insulated therefrom. A short circuit is thus established at the spring terminals $m^5 m^6$ through the block m^4 and the local machine is cut out from the main line. To operate the machine it is simply necessary to release the thumb spring m^3 which thereupon clears the control lever M and permits it to rise at the front under stress of its spring m^7 . The short circuit at $m^5 m^6$ is broken and the driver B resumes its rotation.

While I have shown in the drawings the preferred form in which I desire to use my improvement, I do not intend to be limited thereto unduly, any more than is pointed out in the claims. On the contrary, I contemplate changes in form, construction and arrangement, the omission of parts and the use of equivalents, as circumstances may suggest or render expedient.

What I claim as new, and desire to secure by Letters Patent, is—

1. In automatic telegraph machines, the combination with the rotating driver and with the circuit make and break ring mounted loosely and separately about said driver but movable to and from the same and supported intermittently thereon at the ring-rim whereby the ring is revolved in single direction only, of the shifter brake controlled from the character key to throw said ring into and out of engagement with the driver, substantially as described.

2. The combination with the rotating driver and with the reciprocating shifter controlled by the character key of the circuit make and break ring interchangeably supported at its inner rim upon said driver, and alternately at its outer rim upon said shifter, substantially as described.

3. The combination with the rotating driver and with the character key-lever having a shifter-brake thereon of the circuit make and break ring loosely surrounding said driver and sustained alternately at its inner and outer rim by said driver and shifter-brake respectively, substantially as described.

4. The combination with the rotating driver, of the character key-lever having a shifter brake, the circuit make and break ring loosely surrounding said driver and intermittently sustained thereon, the latch to hold the key-lever depressed, and a trip pawl carried thereby and projected by said lever into the path of the revolving ring to engage at intervals therewith, substantially as described.

5. The combination with the rotating driver, of the character key-lever having a shifter brake, the circuit make and break ring loosely surrounding said driver and intermittently sustained thereon, the latch to hold the key-lever depressed, a trip pawl carried thereby and projected by said lever into the

path of the revolving ring to engage at intervals therewith, and a spring contact piece bearing upon said ring to govern the electric circuit, substantially as described.

6. In automatic telegraph machines, the combination of a pivoted lever bearing a desired character, a spokeless annular ring divided on its circumference by insulated blocks, so that during its revolution it is adapted to make or break connections with an electric circuit a corresponding number of times and provided with gear teeth on its rim, a rotating cylindrical pinion for revolving such ring, and a tension spring for holding such actuating lever in its initial position, the whole so constructed and arranged that when the actuating lever is depressed the ring is thrown into engagement with its rotating mechanism, and when such lever is returned to its initial position the ring is held out of engagement with its operating pinion, substantially as described.

7. In automatic telegraph machines, the mechanism for preventing a lever from being depressed until a previous depressed lever has returned to its initial position, which consists in the combination of the actuating levers, a projecting piece on each of such levers, a plate provided with slots or openings into which such projection extends, and a sliding plate having slots or openings at an angle to the first plate through which such projection on the lever also extends, whereby as the lever is depressed the solid portion of the sliding plate is brought to register with the slots of the other plate and prevent a second lever or levers from being depressed, substantially as described.

8. In automatic telegraph machines, the means for locking the machine and short-circuiting the same, which consists in the combination of a pivoted lever normally held in its inoperative position, adapted when it is depressed to operate a sliding bar and prevent the operating of the character bearing mechanism and provided with a portion adapted to engage with and stop the rotating mechanism, and a metallic conducting block adapted to contact with spring terminals when such lever is actuated and short-circuit the machine, and means for holding such lever in its actuated position, substantially as described.

9. In automatic telegraph machines, the combination of a toothed driver connected with a source of electric energy, an annular spokeless ring provided with serrations adapted to engage with and be driven by the toothed driver and make and break connections with an electric circuit a pre-determined number of and length of times, a spring for holding such ring in engagement with its toothed driver and which completes the electric circuit, a character bearing key lever forming a shifter brake to engage, dis-engage and arrest the motion of such annular ring, a pivoted latch adapted to hold such key lever

in its depressed or actuated position, provided
with a trip pawl adapted to be actuated by
the rotating ring when the desired signal has
been transmitted and permit the key lever
5 to resume its original position, means on such
key lever for holding the trip pawl out of en-
gagement with the rotating ring when the key

lever is in its original position, and pins on
such rotating ring to actuate such trip pawl,
substantially as described.

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Witnesses:

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